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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,287	08/23/2001	Cynthia A. Kuper	11076-004	1185

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EXAMINER

YAO, SAMCHUAN CUA

ART UNIT PAPER NUMBER

1733

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/938,287

Applicant(s)

KUPER, CYNTHIA A.

Examiner

Sam Chuan C. Yao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --.

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 2 and 5 is/are allowed.
- 6) ☒ Claim(s) 3 and 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is indefinite, because it is unclear what is intended by *"the addition of another substance; a polymer, epoxy, resin or ceramic, such that the second material is added in a stable colloid form to the colloid carbon nanotubes, ..."*

(bold face and emphasis added). Is there any relationship between the recited *"polymer, epoxy, resin or ceramic"* and the added substance? Moreover, the second material does not have a positive antecedent basis.

Claim 4 is indefinite for the same reason as claim 3. Moreover, it is unclear whether this claim is dependent on claim 1 or claim 2. If this claim is dependent on claim 2, why is the method steps in independent claim 1 become pertinent to this claim.

Allowable Subject Matter

3. Claims 1-2 and 5 are allowed.
4. The following is a statement of reasons for the indication of allowable subject matter:

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Niu et al (US 2003/0089893 A1; filing date: 10/02, and provisional application filing date: 10/01) teaches functionalizing SWNTs by reacting SWNTs with chemical media such as alcohol or amine groups; dispersing the functionalized SWNTs in a dispersing medium such as a water, alcohol, etc; adding monomers to the dispersing medium to form a mixture; and polymerizing mixture (abstract; page 4 numbered paragraph 0054-0061; claims 11-12). Fischer et al (US 6,203,814) is also cited as further evidence to show that it is well known in the art to form functionalized SWNTs. (abstract). It is also known per se in the art to form a two-dimensional array of SWNTs and to introduce a linking moiety onto at least one end of the carbon nanotubes so that the carbon nanotubes can be attached to a substrate as exemplified in the teachings of Smalley et al (abstract; numbered paragraphs 0017, 0019; 0160 to 0162). The Admitted Prior Art (APA) discloses that, it is known in the art to apply a sol-gel process in a ceramic industry, the process *"involves initially a sol, a sub micron solid particle forming a colloidal suspension in a liquid, Secondly an additive which gels to sol, usually a chemical that promotes condensation of more than one solid particle to itself, Thirdly: a heat treatment period which evaporates the liquid. The final result is a thin (1 micron) or thick film (>1 micron) of a dimensionally ordered solid array"* (specification; page 7 full paragraphs 2-3).

However, none of the above, discloses chemically treating SWNTs to provide chemically reactive groups to the SWNTs' ends; suspending them in a liquid medium to form a colloid, treating the colloid to promote coupling of the SWNTs;

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and evaporating the liquid to form a two or three dimensionally ordered arrays and "*covalently bound*" SWNTS; wherein the term "ordered array" is taken to require SWNTs being parallel or perpendicular with respect to one another as defined on page 6 2nd paragraph of the specification.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (703) 308-4788. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff H Aftergut can be reached on (703) 308-2069. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2058.



Sam Chuan C. Yao
Primary Examiner
Art Unit 1733

Scy
10-01-03